ABSTRACT

[01] A method and apparatus for optimizing and assessing the response to extra-systolic stimulation (ESS) are provided. An optimization/monitoring parameter is calculated as a function of potentiation ratio, PR, and recirculation fraction, RF, derived from measurements of myocardial contractile function during and after ESS. PR may be computed as the ratio of the contractile function on post-extra-systolic beats during ESS to baseline contractile function. RF may be computed as the slope of a linear regression performed on a plot of the contractile function for a post-extra-systolic beat versus the contractile function for the previous post-extra-systolic beat after ESS is ceased. The ESI resulting in a maximum optimization/monitoring parameter, preferably computed as the product of PR and RF, is determined as the optimal ESI. The operating ESI may be automatically adjusted, and/or PR and RF data may be stored for monitoring purposes.